CERTIFICATE NUMBER	21-2098083-PDA
EFFECTIVE DATE	29-Mar-2021
EXPIRY DATE	28-Mar-2026
ABS TECHNICAL OFFICE	Houston ESD - Piping

CERTIFICATE OF

Product Design Assessment

This is to certify that a representative of this Bureau did, at the request of

HOSE MASTER, LLC

located at

1233 EAST 222ND STREET, CLEVELAND, OH, United States, 44117

assess design plans and data for the below listed product. This assessment is a representation by the Bureau as to the degree of compliance the design exhibits with applicable sections of the Rules. This assessment does not waive unit certification or classification procedures required by ABS Rules for products to be installed in ABS classed vessels or facilities. This certificate, by itself, does not reflect that the product is Type Approved. The scope and limitations of this assessment are detailed on the pages attached to this certificate.

Product:	**Expansion Joint, Bellows Type**
Model:	**15635-3 REV C (36") and 15636-3 REV A (16")**
Endorsements:	
Tier:	**2 - PDA Issued**

This Product Design Assessment (PDA) Certificate remains valid until 28/Mar/2026 or until the Rules and/or Standards used in the assessment are revised or until there is a design modification warranting design reassessment (whichever occurs first).

Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or previous to the effective date of the ABS Rules and standards applied at the time of PDA issuance. Use of the Product for non-ABS units is subject to agreement between the manufacturer and intended client.

American Bureau Of Shipping

Yongjin Lee

Yongjin Lee,Engineer/Consultant

NOTE: This certificate evidences compliance with one or more of the Rules, Guides, standards or other criteria of ABS or a statutory, industrial or manufacturer's standards. It is issued solely for the use of ABS, its committees, its clients or other authorized entities. Any significant changes to the aforementioned product without approval from ABS will result in this certificate becoming null and void. This certificate is governed by ABS Rules 1-1-A3/5.9 Terms and Conditions of the Request for Product Type Approval and Agreement (2010)

Sensitivity: Internal & Restricted

HOSE MASTER
1233 EAST 222ND STREET
CLEVELAND OH
United States 44117
Telephone: 800-221-2319
Fax: 216-481-2020
Email: Sales@hosemaster.com
Web: hosemaster.com

Tier: 2 - PDA Issued

Product: **Expansion Joint, Bellows Type**
Model: **15635-3 REV C (36") and 15636-3 REV A (16")**
Endorsements:

Intended Service:
Marine & Offshore Applications

Description:
Exhaust Bellows with variety of fittings as Weld, Fixed, Floating Flanges and others.

Rating:
Design Pressure (15635-3 REV C & 15636-3 REV A): 36" & 16": 15 psi;
Design Temp: 1022 ºF;
Design Cycle Life : 3,000 EJMA.

Service Restriction:
Unit Certification is not required for this product.
If the manufacturer or purchaser request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.

Comments:
The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.
Expansion joints are to be permanently marked with the manufacturer's name and the month and year of manufacture.

Notes/Drawing/Documentation:
Dwg No. 15635-3, Rev. C.03, 36" NPS X 15.75" OAL SINGLE EXPANSION JOINT, Sheet 1 of 1 dated 4/22/2016;
Dwg No. 15636-3, Rev. A.02, 16" NPS X 12" OAL W/LINER AND PIPE SPACER ONE END, Sheet 1 of 1 dated 4/25/2016;
Stress Analysis Calculation for reference drawing No. 15635-3 REV C dated 3/04/2021;
Stress Analysis Calculation for reference drawing No. 15636-3 REV A dated 3/04/2021;

Terms of Validity:
This Product Design Assessment (PDA) Certificate remains valid until 28/Mar/2026 or until the Rules and/or Standards used in the assessment are revised or until there is a design modification warranting design reassessment (whichever occurs first).

Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or previous to the effective date of the ABS Rules and standards applied at the time of PDA issuance. Use of the Product for non-ABS units is subject to agreement between the manufacturer and intended client.

STANDARDS

ABS Rules:
The Rules for Conditions of Classification, 2021 Marine Vessel Rules:1-1-4/7.7, 1-1-A3, 1-1-A4, which covers the followings;
2021 Rules for Building and Classing Marine Vessels: 4-6-2/5.8.2

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The Rules for Conditions of Classification - Offshore Units and Structures, 2021 Mobile Offshore Units Rules: 1-1-4/9.7, 1-1-A2, 1-1-A3 which covers the following:
2021 Rules for Building and Classing Mobile Offshore Units: 4-2-1/11.9

National:
2017 Standards of the Expansion Joint Manufacturers Association (10th Edition)

International:
NA

Government:
NA

EUMED:
NA

OTHERS:
NA